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NON-FARM AGRICULTURAL EMPLOYMENT IN WEST VIRGINIA WITH IMPLICATIONS FOR VOCATIONAL EDUCATION PROGRAMS.

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DESCRIPTORS- *OFF FARM AGRICULTURAL OCCUPATIONS, AGRICULTURAL SKILLS, *EMPLOYMENT OPPORTUNITIES, *EDUCATIONAL NEEDS, EMPLOYMENT QUALIFICATIONS, *OCCUPATIONAL SURVEYS, EMPLOYMENT STATISTICS, EMPLOYERS, VOCATIONAL AGRICULTURE, AGRICULTURAL OCCUPATIONS, GEOGRAPHIC DISTRIBUTION, WEST VIRGINIA,

OFF-FARM AGRICULTURAL OCCUPATIONS WERE ASSESSED AS A BASIS FOR PROJECTING AGRICULTURAL EDUCATION PROGRAMS. SPECIFIC OBJECTIVES INCLUDED (1) IDENTIFICATION OF FIRMS EMPLOYING PERSONS WITH AGRICULTURAL COMPETENCIES, (2) DETERMINATION OF NUMBERS OF EMPLOYEES IN OFF-FARM AGRICULTURAL OCCUPATIONS, (3) DETERMINATION OF THE JOB ENTRY REQUIREMENTS, AND (4) IDENTIFICATION OF APPROPRIATE OCCUPATIONAL TRAINING PROGRAMS AT HIGH SCHOOL AND POST-HIGH SCHOOL LEVELS. AN INSTRUMENT WAS DESIGNED, VOCATIONAL AGRICULTURE TEACHERS WERE TRAINED AS INTERVIEWERS, AND INTERVIEWS WERE CONDUCTED IN 1,717 FIRMS IN 12 GEOGRAPHIC AREAS OF THE STATE. IN THESE FIRMS, 13,851 OFF-FARM AGRICULTURAL EMPLOYEES WERE IDENTIFIED IN 239 DIFFERENT JOB TITLES, WITH AN ANTICIPATED INCREASE OF 1,071 EMPLOYEES IN THE NEXT 5 YEARS. RECOMMENDATIONS WERE (1) USE OF DATA AS A BASIS FOR PROGRAM CHANGE AND STUDENT GUIDANCE, (2) FURTHER ANALYSIS OF GEOGRAPHIC AREAS AND EMPLOYMENT STATISTICS, (3) DEVELOPMENT OF A PILOT FORESTRY TECHNICIAN PROGRAM, (4) UTILIZATION OF OTHER PILOT PROGRAMS TO DETERMINE DIRECTIONS, (5) CONSIDERATION OF THE FEASIBILITY OF A FORESTRY INSTITUTE, (6) INVOLVEMENT OF OTHER VOCATIONAL EDUCATION SERVICES IN PLANNING PROGRAMS, AND (7) CONDUCT OF ADDITIONAL STUDIES CONCERNING PREEMPLOYMENT AND INSERVICE EDUCATION IN CERTAIN NON-FARM OCCUPATIONS, TEACHER EDUCATION FOR NON-FARM AGRICULTURE, AND PROVISION OF OCCUPATIONAL EXPERIENCES FOR THOSE PREPARING FOR EMPLOYMENT IN NON-FARM AGRICULTURE. (JM)

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NON-FARM AGRICULTURAL EMPLOYMENT IN WEST VIRGINIA WITH IMPLICATIONS FOR VOCATIONAL EDUCATION PROGRAMS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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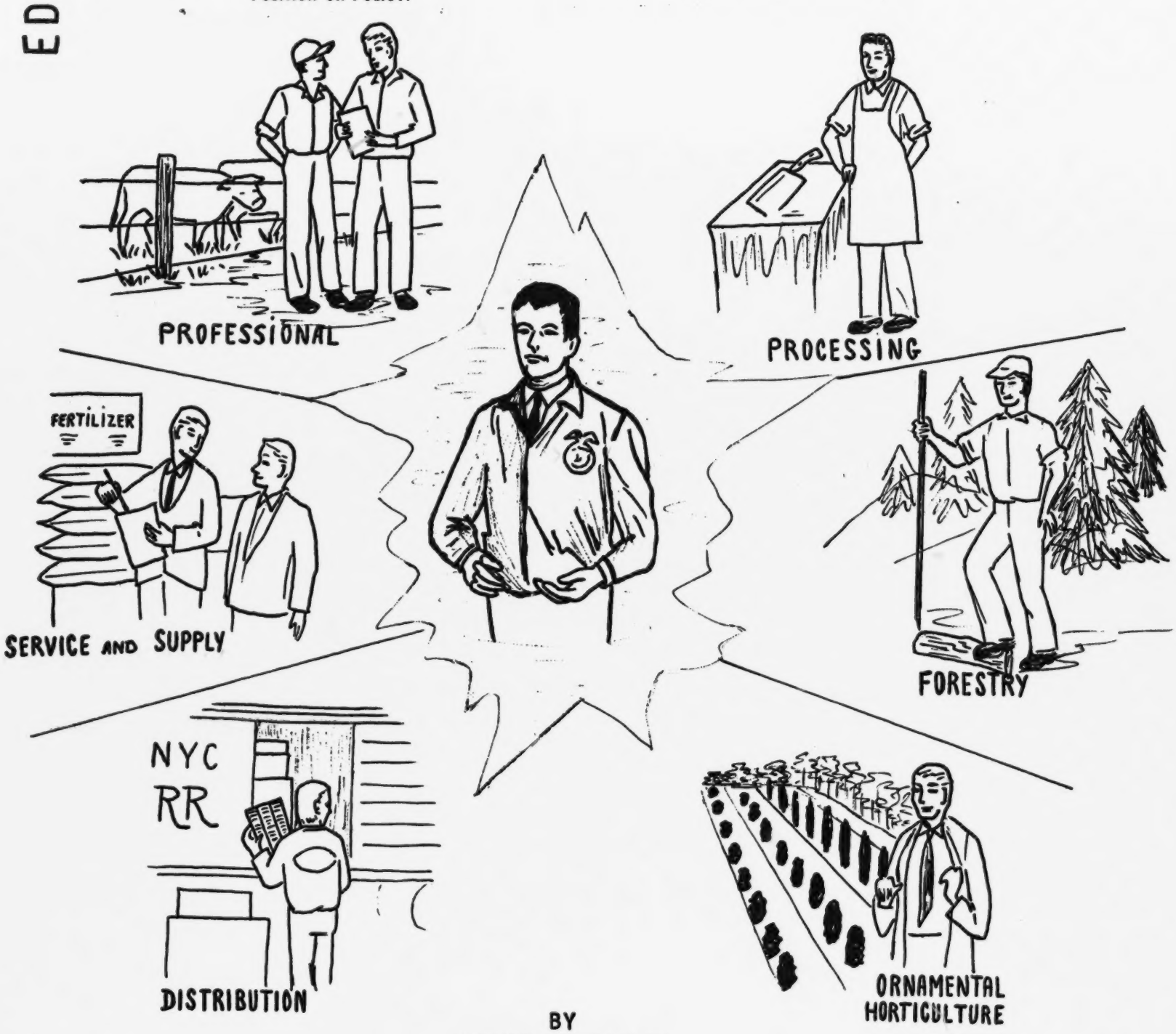

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F O R E W O R D

Programs of vocational education in agriculture, following the passage of the Smith-Hughes Act, have been largely concerned with preparation for entrance into farming. However, today it is generally accepted that agriculture and farming are no longer synonymous. Agriculture today is composed of two major components: the farming or production segment, and the non-farming segment which includes the functions of agriculture other than farming. Vocational education programs in agriculture have not been designed to serve this non-farm agricultural segment, primarily due to the lack of an identification of this type employment.

This publication is an appraisal of the nature and extent of non-farm agricultural employment in West Virginia. The data revealed in this publication suggest significant opportunities for broadening and extending current programs of vocational agriculture or implementing new programs to serve non-farm agricultural employment. The extent to which these data are useful in developing vocational education programs is largely dependent on the vision of teachers of vocational agriculture, school administrators and lay persons. They must recognize and identify the implications for local program planning.

Joseph K. Bailey

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NON-FARM AGRICULTURAL EMPLOYMENT IN WEST VIRGINIA, WITH IMPLICATIONS FOR VOCATIONAL EDUCATION PROGRAMS

A NEED AND A PLAN

This study concerns an assessment of the non-farm agricultural employment pattern in West Virginia as a basis for projecting agricultural education programs suited to preparing youth for entering the world of work.

The purpose of the study is to appraise the extent and nature of the non-farm agricultural employment in the state. Inherent in this appraisal will be a census of the number and kinds of agencies which employ agricultural workers and the number and types of agriculturally oriented positions and occupations.

Objectives

In order to achieve the purpose of this study, the following specific objectives seem in order:

1. To identify the various agencies, including firms, businesses, industries, and organizations, having employees required to possess agricultural competencies.

2. To determine the number of employees in various non-farm agricultural job classifications.

3. To determine some of the basic requirements for entering non-farm agricultural employment.

4. To identify certain occupations or occupational areas for which training programs could most appropriately be implemented at high school and post-high school levels to prepare for successful entrance.

Need for the Study

One of the pertinent factors which prompted this study was the need for agricultural educators in West Virginia to implement an extended, broadened program to serve those desirous of entering both farm and non-farm agricultural occupations. If the program of vocational education in agriculture is to be broadened and extended or cooperative programs developed with the other services to provide needed competencies for employees in certain agricultural occupations, it is imperative that carefully validated information concerning the number, extent, and location of non-farm agricultural occupations be obtained. Concurrent with meeting this need must be the determination of skills, knowledge, and competencies which are essential for the person to enter and hold the occupation.

Provincial educational programs inadequate

Educational programs evolving from this study need not necessarily be concerned with the employment opportunities of a single geographic area, but may very well provide training for employment beyond the bounds of the area. While the rural community once constituted the bounds of a school district, the limits today are much greater, determined largely by the nature and level of the educational program offered and the feasibility of placing trainees in contact with these offerings. More and more educational programs are being regarded as a function of state and national purpose. Increasing awareness of the transient nature of the nation's citizenry has brought recognition that the benefits of education are felt in areas often quite far removed from the one in which the education is

sponsored. "Every year nearly one American in five changes his residential address. One person in four now lives in a state other than the one in which he was born."[1]

The traditional image of the robust, rosey-cheeked, bright-eyed farm youth who abounds in those qualities needed for the nation's work and leadership may have been authentic a century ago, but in the current space age this image does not assure employment. Rural youth may be disadvantaged when competing with urban youth in the labor market. The following points have become recognized in the comparison or rural- and urban-reared youth.[2]

1. Rural youth have lower educational aspirations.
2. A lesser proportion of rural youth go to college.
3. A larger proportion of rural youth drop out of high school.
4. A larger proportion of rural youth enter unskilled or semi-skilled work.

A broadened, extended program of vocational education in agriculture could utilize the farm background possessed by many rural youth as a base for a training program leading to employment in a non-farm agricultural occupation.

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[1] Education for a Changing World of Work, Summary Report of the Panel of Consultants on Vocational Education (Washington: U. S. Government Printing Office, 1963), pp. 9-10.

[2] Lee G. Burchinal, "Farm vs. Non-Farm Youth in the Urban Labor Market," Extension Service Review, Extension Service, U. S. Department of Agriculture (Washington: August, 1963), p. 144.

It is not claimed that an extended, broadened program of vocational education in agriculture will be a panacea for all social and economic problems confronting rural youth. However, society is becoming cognizant that rural social problems are rapidly being compounded by unemployment, mobility, and technological changes, and the lack of adequate educational programs to cope with these developments. While the primary purpose of this study is to provide a basis for the structure of a model for programs of vocational education in agriculture to serve the citizenry of West Virginia, the study and resulting program could ultimately make substantial contributions to raising the employment opportunities and social status of rural youth.

Evolving Change in Agriculture

Certain factors and conditions giving impetus to and substantiating the need for the study warrant a more detailed consideration.

The increased productivity of farmers has enabled agriculture to release manpower to non-farm sectors of the economy. A large proportion of this released farm labor is unskilled and poorly equipped for productive employment in non-farm occupations.

One of the major aspects of economic progress in agriculture is the increased specialization of farms and the transfer of tasks formerly performed on farms to non-farm firms. As this agricultural business sector has developed and expanded, opportunities have evolved for employment of some of the labor released from farming.

The tremendous technological advances in production, marketing, distributing, and processing today present a marked contrast to the agricultural progress of a century ago. It is conceived that the

agricultural education climate has changed, likewise, in contemporary times, making necessary and essential a reassessment of needs and concepts of agricultural education.[3] Vocational education in agriculture has contributed greatly to the conversion of millions of farmers to non-farmers. Certainly, by increasing the productivity of farmers and by enabling agriculture to release labor to the non-farm sectors of the economy, the agricultural education programs have made it possible for our society to enjoy unparalleled variety and volume of non-farm goods and services, as well as an abundance of food and fiber.[4] While improved managerial ability and increased productivity of labor resources have contributed to the release of farm workers to non-farm employment, many of whom entered occupations closely related to farming, agricultural educators have exhibited little concern for the lack of preparation for entering a non-farm labor market.

In the past programs of vocational education in agriculture have been largely concerned with preparation for entrance into farming. This concept is being challenged by educators who are becoming increasingly aware that agriculture and farming are no longer synonymous. It seems evident that a broadened and extended program

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[3]"The Ohio Agricultural Education Needs Study," Department of Agricultural Education, Ohio State University, Columbus, Ohio (mimeographed), p. 3.

[4]C. E. Bishop and G. S. Tolley, Manpower in Farming and Related Occupations, A study prepared for the President's Panel of Consultants on Vocational Education (Washington: July, 1962), p. 39.

of vocational education in agriculture would play a vital role in providing needed instruction for certain workers in non-farm agricultural occupations.[5]

No longer does agriculture encompass only the people who produce the crops and livestock, but it now includes many occupations closely related to production agriculture. Agriculture today is composed of two major components: the farming or production segment and the non-farming segment which includes the functions of agriculture other than farming. In recent years the number of persons engaged in agriculture has remained substantially constant, with the decrease in the farming segment being balanced by the rise in employment of those entering non-farm agricultural occupations.[6] However, the basic purpose of vocational education in agriculture remained unchanged until 1963 when it was broadened to include preparation for all aspects of agriculture including forestry.

The Changing Agriculture in West Virginia

The decline of the farm population was as equally pronounced in West Virginia as on a national basis. The farm population in the state reached a peak of 418,988 in 1935, but had declined to 155,000 in 1960, as depicted in Table 1.

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[5]Report of Research Coordination Conference on Agricultural Occupations, National Center for Advanced Study and Research in Agricultural Education, Ohio State University, Columbus, Ohio, May 27-29, 1963 (mimeographed), p. iii.

[6]"Instruction in Agriculture under the Manpower Act," Division of Vocational and Technical Education, Department of Health, Education and Welfare, Office of Education, Washington, D. C. (mimeographed).

TABLE 1

WEST VIRGINIA
TOTAL AND FARM POPULATION
1930-1960[7]

Total Population		Farm Population Number of Persons	Percentage of Total Population
1935	1,813,000	418,988	23.0
1940	1,901,000	377,271	19.0
1950	2,005,000	293,094	14.6
1960	1,860,000	155,000	8.3

This farm population peak in 1935 partially resulted from a back-to-the-farm movement which began early in the depression of the 1930's and which added 114,000 persons to the farm group by 1935.[8] This peak was short-lived. Many farm operators, confronted with limited acreage, capital, and managerial ability, looked to off-farm employment as a means of obtaining the substances of life. The situation was further aggravated by a growing industrial complex induced by the availability of coal and other natural resources which solicited labor from many farming operations.

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[7] Handbook of Agricultural Charts, Handbook No. 258, Agricultural Research, Statistical Service, U. S. Department of Agriculture (Washington: 1963), p. 176.

[8] Charles Ambler and Festus Summers, West Virginia, The Mountain State (Englewood Cliffs, N. J.: Prentice-Hall Inc., 1958), pp. 540-541.

With the farm population exodus came a proportional decrease in the number of farms. The number of farms in West Virginia reached a peak of 104,747 in 1935; this figure had declined to 44,011 in 1960.

TABLE 2

NUMBER OF FARMS IN WEST VIRGINIA 1920-1960[9]

1920	87,289
1935	104,747
1940	99,282
1950	81,418
1960	44,011*

*7,066 of the decrease between 1950 and 1960 was due to a change in the definition of a farm.

The decline in farm population and in number of farms in West Virginia is representative of a comparable decline on a national basis. It becomes apparent that the opportunities for entering the occupation of farming have decreased in proportion to the decrease of farms and farm population.

Bounds of the Study

It is apparent that a study which involves many intangible and human factors must be governed by certain limitations. The following limiting factors are pertinent to the scope of this study.

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[9]"Farm Data for West Virginia," Vocational Agriculture Division, West Virginia Board of Education, Charleston, West Virginia (mimeographed), p. 12.

1. The study is concerned only with those non-farm occupations that are agricultural in nature.

2. The study is limited to the determination of those non-farm agricultural occupations that may be found in West Virginia.

3. The study is limited to a consideration of agricultural occupations that may be identified by means of a relatively comprehensive survey of selected non-farm places of employment.

4. The non-farm agricultural occupations identified by the study were limited to those which, in the opinions of the employers, required the employee to possess agricultural competencies.

Definition of Terms

In order that maximum clarity might prevail throughout this study, certain terms are defined.

1. Agricultural occupation: An occupation in which the worker needs competencies in one or more of the primary areas of plant science, animal science, soil science, agricultural mechanization, and agricultural business management.

2. Non-farm agricultural occupation: An agricultural occupation other than farming or ranching.

3. Agencies; also employing agencies: Those companies, firms businesses, organizations, industries, services, instrumentalities, or any combination of these, in which are found positions of employment which fall within the concern of this study.

Method of Investigation

It was apparent from the early planning of this study that the extent to which the objectives could be realized depended largely on the method and procedure used in collecting the data relative to the non-farm agricultural employment.

Overview of procedure

It was the consensus of the vocational agriculture supervisory staff in West Virginia that this study could contribute greatly to local programs of vocational agriculture. A plan was conceived whereby the vocational agriculture teachers in each county would serve as interviewers of responsible personnel in all employing agencies with non-farm agricultural employees. Participation by the teachers in this capacity, it was thought, would lead to involvement in the study to the extent that they would become familiar with the non-farm agriculture employment in their respective counties. This plan was presented to the teachers August 17, 1963, during the annual Vocational Agriculture Teachers' Conference, and they gave approval to the proposal. Concurrent with this action a detailed procedure was designed to facilitate the census in every county of the state. In the counties not served by vocational agriculture special interviewers were assigned.

A phase of the detailed plan was to prepare a handbook for interviewing with specific instructions for using the instrument. The handbook also included a section of general information relating to interviewing.

In order to achieve maximum agreement in the results obtained by the interviewers, it was determined that some orientation should be provided all interviewers. Nine area workshops were conducted for

training interview personnel. These workshops provided training in the techniques of interviewing and the method and procedure for obtaining and recording the data requested by the instrument.

The dates designated for the statewide census were November 1, 1963, through June 30, 1964.

Criterion for determining occupations

The first phase in carrying out the objectives was to identify the non-farm agricultural occupations to be included in the study. Studies of this nature in the past have not revealed any precise criteria by which those occupations or occupational areas could be identified in which employees were required to possess agricultural competencies. There was a unified effort of significant scope to define an agricultural occupation other than farming in May, 1963, during a research coordination conference in which the author participated.[10] The definition of an agricultural occupation evolving from this conference, with slight modification, was used as the criterion for identifying the occupations in this study. Any occupation, other than farming, in which the worker was considered likely to need knowledge of or competencies in one or more of the primary areas of plant science, animal science, soil science, agricultural mechanization, and agricultural business management was included in this study.

Preparing the instrument

The plan to identify the employment components of the non-farm agricultural industry necessitated the development of an instrument designed to structure interviews for obtaining pertinent data from

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[10]Report of Research Coordination Conference on Agricultural Occupations, National Center for Advanced Study and Research in Agricultural Education, Ohio State University, Columbus, Ohio, May 27-29, 1963 (mimeographed).

this industry. Consequently an instrument was designed which would make various determinations about the employer being surveyed and provide an identity of those occupations in which an employee was required to possess some knowledge of or competencies in agriculture. In keeping with the objectives of this study, it was apparent that the survey instrument should entail both employer and employee data. Certain data relative to the employer would be necessary in order to classify the various components of the agriculture industry. If an identification of the sector of the labor force which would be considered agricultural employment were to be realized, then certain employee data were imperative. A copy of this survey instrument follows.

NON-FARM AGRICULTURAL OCCUPATIONS STUDY

FORM 1

I. Company, firm, business, organization, or agency

A. Name of firm, etc. _____

B. Address _____ County _____

C. Person interviewed _____ Position _____

D. Main function of firm, agency, etc.

____ 1. Sales - buying and selling
____ 2. Services
____ 3. Manufacturing
____ 4. Processing
____ 5. Specialized agriculture
____ 6. Recreational enterprises
____ 7. Professional service
____ 8. Other (specify) _____

E. Major function, service, product described

_____

_____

_____

_____

II. Employees

A. Number present working force	____total	____male	____female
1. Full-time	____total	____male	____female
2. One-half time to full-time	____total	____male	____female
3. Less than one-half time	____total	____male	____female
B. Number employees anticipated five years hence.	____total	____male	____female
C. Number present employees requiring agricultural competencies.	____total	____male	____female
D. Number employees needing agricultural competencies five years hence.	____total	____male	____female

Interviewer _____

Date _____

III. Employees - Major agricultural oriented job titles and basic requirements for entering the occupation.
(Place most descriptive number in each column.)

A	B	C	D	E	F
JOB TITLE	PRESENT NUMBER OF EMPLOYEES	NUMBER OF EMPLOYEES ANTICIPATED 5 YRS. HENCE	KNOWLEDGE OF AGRICULTURE REUQIRED 1-Comprehensive 2-General 3-Casual 4-None	FORMAL EDUCATION REQUIRED 1-Doesn't Matter 2-Some High School 3-High School Grad 4-High School Plus Special Training 5-Some College 6-College Grad 7-Graduate Degree	OCCUPATIONAL LEVEL 1-Proprietors & Managers 2-Professional 3-Technical 4-Sales 5-Clerical 6-Skilled 7-Semi-Skilled 8-Unskilled
(Example) Farm Machinery Repairman	2	3	3	4	6
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14					
15.					

NON-FARM AGRICULTURAL EMPLOYMENT IN WEST VIRGINIA

In this section are data relative to the agricultural employment other than farming. These data were collected in accordance with the methods and procedures described earlier and are presented so as to offer a portrait of the extent and nature of the total non-farm agricultural employment in various areas of the state.

Such factors as current and projected employment, a comparison of non-farm agricultural employment with the total labor force, and the size and type of firms with agriculturally oriented workers are considered so as to describe the extent of the employment portrait in the state. The analysis deals with detailed occupational information as it relates to job titles, categorization of occupations, occupational levels, and formal education required for entrance.

Validity of Data

Two factors inherent in the study insured a high degree of validity for the data obtained. The first was the education, experience and tenure qualifications of the persons who collected the information from the employers of non-farm agriculture workers. It is obvious that teachers of vocational agriculture, who were agricultural specialist with an average of 12.2 years teaching experience and an average of 10.7 years tenure in their current positions would have been thoroughly acquainted with the non-farm agriculture employment in their respective counties.

The other factor was the responsible positions of the persons from whom the data were obtained.

Responsibility levels of persons interviewed

It was desired that information relative to the non-farm agricultural employment be obtained from personnel of the employing agencies most likely to have accurate and reliable information and opinions.

The survey instrument contained a section wherein the interviewer was to indicate the nature of the position of the person from whom information was obtained. A summary of this information is recorded in Table 3.

It is apparent from the data in Table 3 that the interviewers were quite successful in their attempts to contact individuals who should have been in positions to know the information sought. There was a total of 1,717 persons interviewed representing that number of agencies. Of those interviewed, 1,392, or 81 per cent, were in managerial or supervisory positions. All of these persons were in positions which required them to employ, manage, or supervise personnel. It was assumed that all were familiar with qualifications for employment and the performing of the responsibilities of each position. It was generally determined that a large proportion of the remaining 325, or 19 per cent, were office personnel. Even they should have a general knowledge of the firm personnel and whether their positions required them to possess knowledge of or competencies in agriculture. Because of the diligent efforts of the interviewers who realized the purposes of the study, the likelihood of employees being included in the census who were not in non-farm agricultural occupations was considered low.

TABLE 3

RESPONSIBILITY LEVELS OF PERSONS INTERVIEWED

Position in Firm	Number	Per Cent of Total
Owner	713	41
Manager	422	25
Personnel Manager	76	4
Business Manager	53	3
Foreman	43	2
Superintendent	31	2
Office Manager	29	2
Sales Manager	19	1
Supervisor	6	1
Other	325	19
TOTALS	1,717	100

Distribution of Non-Farm Agricultural Employment by County

The non-farm agricultural employment in the state contained 13,851 workers employed by 1,717 employing agencies. The distribution of this employment is depicted by Table 4.

The range of this employment was quite extensive. The number of employing agencies ranged from 9 in Clay County to 113 in Monongalia County. The number of non-farm agriculture workers ranged from 54 in Doddridge County to 1,136 in Cabell County.

TABLE 4

DISTRIBUTION OF NON-FARM AGRICULTURAL EMPLOYMENT BY COUNTY

County	Number Commercial Farms	Number Agencies Employing Agricultural Workers	Number Non-Farm Agricultural Workers
Barbour	276	26	178
Berkeley	461	31	126
Boone	70	23	211
Braxton	268	22	129
Brooke	31	15	78
Cabell	155	60	1136
Calhoun	176	28	147
Clay	105	9	197
Doddridge	148	12	54
Fayette	150	33	313
Gilmer	116	35	139
Grant	364	18	190
Greenbrier	626	57	586
Hampshire	477	46	298
Hancock	22	26	150
Hardy	571	53	281
Harrison	367	74	466
Jackson	383	23	119
Jefferson	376	31	212
Kanawha	142	103	1047
Lewis	291	27	152
Lincoln	210	16	133
Logan	25	26	190
Marion	165	51	208
Marshall	346	19	221
Mason	448	43	240
Mercer	202	30	229
Mineral	155	14	134
Mingo	6	17	190
Monongalia	220	113	739
Monroe	495	28	122
Morgan	142	32	159
McDowell	15	16	132
Nicholas	136	23	203
Ohio	171	37	491
Pendleton	597	26	161
Pleasants	50	11	68
Pocahontas	256	23	301
Preston	406	47	411
Putnam	243	15	80
Raleigh	195	15	221
Randolph	262	33	373

County	Number Commercial Farms	Number Agencies Employing Agricultural Workers	Number Non-Farm Agricultural Workers
Ritchie	171	10	64
Roane	323	43	231
Summers	244	23	195
Taylor	116	23	131
Tucker	116	22	349
Tyler	182	21	137
Upshur	253	44	341
Wayne	252	36	217
Webster	50	10	150
Wetzel	141	29	130
Wirt	162	11	79
Wood	213	47	391
Wyoming	66	11	221
TOTALS	12,609	1,717	13,851

It is interesting to note that the relationship between agencies and workers in each county is highly consistent throughout the state. Generally as the number of employing agencies increases so does the number of non-farm agricultural workers.

It can be noted that there is some correlation between the distribution of commercial farms and the agricultural employment. Many of the counties with the greater number of commercial farms contained a significant amount of non-farm agricultural employment.

Distribution of Non-Farm Agricultural Employment by Geographic Area

For the purposes of presenting an analysis of data in a manner which would be of benefit to the later planning of educational programs on an area basis, the non-farm agricultural employment is considered on a geographic basis.

After a study of several possible ways of grouping the fifty-five counties into geographic areas, it was decided that the grouping used by the West Virginia Department of Employment Security would be the most

practical and feasible for this study.[12] The fifty-five counties of the state were outlined as larger geographic areas by the Department of Employment Security on the basis of county similarities such as types of industrial patterns, geographic characteristics, economic characteristics, transportation systems, and human resources. Perhaps the greatest single factor contributing to the formation of these areas was the need to establish bounds for labor market areas. The pattern of grouping was highly suitable for this study because labor market areas would be of primal consideration in the planning and implementing of area vocational education programs.

The counties grouped, the labor force, and the non-farm agricultural employment of each geographic area are presented in Table 5.

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[12] West Virginia Labor Force, Vol. I, No. 1, Department of Employment Security, State Capitol, Charleston, West Virginia, 1960, p. 8.

TABLE 5

THE WEST VIRGINIA COUNTIES, LABOR FORCE, AND NON-FARM AGRICULTURAL EMPLOYMENT BY GEOGRAPHIC AREAS

Geographic Area	Counties	Labor Force[13]	Number of Employing Agencies	Non-Farm Agricultural Workers
1	Boone, Logan, Mingo	21,055	66	591
2	McDowell, Raleigh, Wyoming	30,984	42	574
3	Fayette, Greenbrier, Mercer, Monroe, Pocahontas, Summers	37,712	194	1746
4	Calhoun, Pleasants, Ritchie, Roane, Tyler, Wetzel, Wirt, Wood	33,928	200	1247
5	Cabell, Jackson, Lincoln, Mason, Putnam, Wayne	49,587	193	1925
6	Braxton, Clay, Gilmer, Lewis, Nicholas, Upshur, Webster	20,458	170	1311
7	Barbour, Doddridge, Harrison, Marion, Monongalia, Preston, Taylor	56,326	346	2187
8	Kanawha	57,950	103	1047
9	Marshall, Ohio	24,879	56	712
10	Brooke, Hancock	17,777	41	228
11	Berkeley, Jefferson, Morgan	14,349	94	497
12	Grant, Hampshire, Hardy, Mineral, Pendleton, Randolph, Tucker	20,154	212	1786
	TOTALS	385,159	1717	13851

[13] West Virginia Labor Force, Vol. 1, Number 13, pp.13-14.

Size of employing agencies

A factor related to the extent of the non-farm agricultural employment in West Virginia was the size of the employing agencies. The data contained in Table 6 represent a grouping of the agencies according to the number of workers in such firms whose positions require them to possess knowledge, competencies, or skills in one or more of the basic areas of agriculture. The agricultural workers were only a small percentage of total employed by many of the agencies, but only the agricultural workers are depicted in this table.

TABLE 6

AGENCIES EMPLOYING AGRICULTURALLY ORIENTED PERSONNEL GROUPED ACCORDING TO THE TOTAL NUMBER OF SUCH PERSONS EMPLOYED

Number of Agricultural Employees	Number of Employing Agencies	Per Cent
5 or less	1,128	65.7
6 to 10	306	17.9
11 to 15	113	6.6
16 to 20	54	3.1
21 to 30	56	3.2
31 to 40	26	1.5
41 to 50	13	.8
51 to 100	12	.7
Over 100	9	.5
TOTALS	1,717	100.

The preceding data show that the scope and extent of farming in West Virginia does not require large agencies, in terms of agricultural employment, to provide the necessary allied services. There were 1,128 agencies, or 65.7 per cent, that employed five or less who were considered agricultural employees, and another 17.9 per cent employed six to ten.

It is interesting to note that 83.6 per cent of the agencies employed ten or less. Possibly a large number of the smaller agencies were family owned and operated. This point is better indicated in Table 3 which shows that 41 per cent of the persons in the agencies providing the information were owners.

As the number of agricultural employees increased, the number of agencies decreased. Only 2 per cent, or thirty-four agencies, had over forty agricultural workers. Some agencies of this size were: dairy processing and distribution, saw mills, animal processing, and nurseries.

Only .5 per cent of the agencies employed one hundred or more agricultural workers.

Non-Farm and Farm Agricultural Employment As a Per Cent of the Total Labor Force

The data contained in Table 7 provide information relative to the total agricultural sector of the labor force. This agricultural sector of the labor force includes only those workers in positions requiring them to possess and maintain knowledge, skills, or competencies in one or more areas of agriculture. The table classifies this sector into two components: non-farm agricultural workers and farm workers.

Table 7 shows that 34,605, or 9 per cent of a total labor force of 385,159, are in positions requiring knowledge, skills, or competencies in one or more areas of agriculture. This total includes both the non-farm and farm sectors of agricultural employment.

The non-farm agricultural employment comprises 3.6 per cent of the labor force. It should be pointed out here that this percentage would probably be considered low on a national basis. The fact that West Virginia is not typically considered a "farming" state accounts for the relatively small number comprising the non-farm agricultural sector of the labor force.

The range of the twelve areas was Area 12 with 31.3 per cent to Area 10 with 1.9 per cent.

TABLE 7

COMPARISON OF AGRICULTURAL EMPLOYMENT WITH TOTAL LABOR FORCE BY GEOGRAPHIC AREA

Area	Labor Force[14]	Non-Farm		Farm		Total Per Cent Farm and Non-Farm
		Number	Per Cent of Labor Force	Number[15]	Per Cent of Labor Force	
1	21,055	591	2.8	46	.2	3.0
2	30,984	574	1.9	419	1.4	3.3
3	37,712	1,746	4.6	2,945	7.8	12.4
4	33,928	1,247	3.7	2,095	6.2	9.9
5	49,587	1,925	3.9	2,549	5.1	9.0
6	20,458	1,311	6.4	1,783	8.7	15.1
7	56,326	2,187	3.9	2,586	4.6	8.5
8	57,950	1,047	1.8	188	.3	2.1
9	24,879	712	2.9	1,132	4.6	7.5
10	17,777	228	1.3	106	.6	1.9
11	14,349	497	3.5	2,390	16.7	20.2
12	20,154	1,786	8.9	4,509	22.4	31.3
TOTALS	385,159	13,851	3.6	20,754	5.4	9.0

[14] Ibid

[15] U. S. Census of Agriculture, 1959, pp. 127-131.

Categories of Non-Farm Agricultural Employment

This section deals with the nature of the non-farm agricultural employment. The various employing agencies and their agricultural employees are grouped in categories relative to the nature of the agencies and the employment.

A total of sixty-eight different types of employing agencies were found to employ agricultural workers. This number is such that it does not lend itself to a detailed discussion of each different type of agency in this chapter; consequently, some system of study by groups of agencies became necessary.

A national seminar[16] suggest that agencies employing agricultural workers could be grouped on the basis of type, such as farm supply, farm service, etc. This method seemed very practical because if the type of agency could be identified and classified, then the function or service could be determined.

Eight categories were named into which all employing agencies would generally place. It is readily admitted that in a few cases the agency did not fall with ease into any category, but the number of agencies involved was not considered so great as to make a significant difference in the larger study. The following categories were selected:

Agricultural Service
Forestry
Farm Machinery Sales and Service
Farm Service
Farm Supplies and Equipment
Livestock and Poultry Industries
Ornamental Horticulture
Wildlife and Recreation

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[16]Second Research Coordination Conference on Agricultural Occupations, The National Center for Advanced Studies and Research in Agricultural Education, Ohio State University, Columbus, Ohio, January 13-15, 1964.

Distribution of employing agencies and of non-farm agricultural employment by category

The distribution by category of the agencies employing non-farm agricultural workers should serve as one of the early indicators to areas of agriculture which would offer the greatest opportunity for planning and implementing training programs, especially when these categories are considered along with the number of employing agencies and workers.

Table 8, which is the distribution of employing agencies, shows the forestry category to rank first with 476, or 27.7 per cent of the employing agencies, with farm service at the other extreme having 31, or 1.8 per cent. The farm supplies and equipment category ranks second in number of agencies with almost one-fourth of all agencies.

TABLE 8

DISTRIBUTION OF AGRICULTURALLY ORIENTED AGENCIES BY CATEGORIES

Category	Number of Employing Agencies	Per Cent
Forestry	476	27.7
Farm Supplies and Equipment	420	24.5
Livestock and Poultry Industries	223	13.0
Ornamental Horticulture	193	11.2
Agricultural Service	157	9.1
Wildlife and Recreation	149	8.7
Produce Industry	68	4.0
Farm Service	31	1.8
TOTALS	1,717	100.0

Table 9 is concerned with the distribution of agricultural employment by category. Almost identical ranking prevailed in number of employees by category as in the number of employing agencies by category. The only exception was the exchange in positions of the livestock and poultry industries and the farm supplies and equipment categories.

In Table 9 forestry ranked first in extent of non-farm agricultural employment. The 4,605 employees, or 33.2 per cent, comprised one-third of the total non-farm agricultural employment discovered in this study. This is further indication that the forestry industry is one sector of the non-farm agricultural force which would receive primal consideration for the planning and implementation of training programs. The farm service category ranked last in terms of number of workers with but 4 per cent, or a total of only 566 workers in the state.

TABLE 9

DISTRIBUTION OF AGRICULTURAL EMPLOYMENT BY CATEGORY

Category	Number of Non-Farm Agricultural Employees	Per Cent
Forestry	4,605	33.2
Livestock and Poultry Industries	2,509	18.1
Farm Supplies and Equipment	1,778	12.8
Agricultural Service	1,424	10.3
Ornamental Horticulture	1,340	9.7
Wildlife and Recreation	828	6.0
Produce Industry	801	5.9
Farm Service	566	4.0
TOTALS	13,851	100.0

Distribution of non-farm agricultural workers by geographic area, county, and category

Since agricultural employment has been presented first by geographic area and then by category, it would be of interest and value to study this total employment in one table. Table 10 is this combined analysis. This table is intended to serve as one summary of non-farm agricultural employment in West Virginia. It provides the preliminary data which could serve as a basis for planning future educational programs for those desirous of entering non-farm agricultural occupations, or to further train those already employed in these occupations.

TABLE 10

DISTRIBUTION OF NON-FARM AGRICULTURAL WORKERS BY COUNTY, GEOGRAPHIC AREA, AND CATEGORY

Area	County	Agricultural Service	Farm Service	Farm Supplies & Equipment	Forestry	Livestock and Poultry	Ornamental Horticulture	Produce Industry	Wildlife & Recreation	Total
		Categories								
1	Boone	5		32	145	3	8	8	10	211
	Logan	6		10	104	48	11	4	7	190
	Mingo	5		18	149	7	5	2	4	190
		16		60	398	58	24	14	21	591
2	McDowell	20		7	48	45	4	2	6	132
	Raleigh	12	10	43	24	87	31		14	221
	Wyoming	11		9	188		9		4	221
		43	10	59	260	132	44	2	24	574

3	Fayette	20		19	234	17	4		9	313
	Greenbrier	21	14	92	287	121	18	14	20	586
	Mercer	14		23	80	100	9		3	229
	Monroe	29	2	28	41	7	5	6	3	122
	Pocahontas	17	12	19	203	8	12	13	17	301
	Summers	19	9	9	105	8	11		34	195
		120	37	190	950	261	69	33	86	1746
4	Calhoun	12		29	83	7	7	7	2	147
	Pleasants	15	10	2	18	3	14		6	68
	Ritchie	11	5	3	16	10	6		3	64
	Roane	26	12	26	129	21	6	5	10	231
	Tyler	13	10	19	75	5	4		11	137
	Wetzel	10	2	14	85	2	14	5	2	130
	Wirt	13	3	5	23	9	16	7	3	79
	Wood	21	10	38	38	202	51	16	16	391
		121	52	136	467	259	118	40	54	1247
5	Cabell	43	234	192	72	229	194	132	40	1136
	Jackson	16	17	18	17	29	7	9	6	119
	Lincoln	10		2	58	9	15	37	2	133
	Mason	31	11	24	48	41	56		29	240
	Putnam	27		25			15		13	80
	Wayne	11	15	22	60	42	55	7	5	207
		138	277	283	255	350	342	185	95	1925
6	Braxton	14	3	23	54	13	14	4	4	129
	Clay	10		4	154	5	15	7	2	197
	Gilmer	22	4	36	52	13		2	10	139
	Lewis	28	4	28	35	18	12	10	17	152
	Nicholas	11	5	24	136	5	6	9	7	203
	Upshur	11		91	159	36	29	5	10	341
	Webster	12		11	112	5	6		4	150
		108	16	217	702	95	82	37	54	1311
7	Barbour	15	10	29	87	10	10	10	7	178
	Doddridge	12	3	9	16	3	2	6	3	54
	Harrison	50	9	100	81	111	42	47	26	466
	Marion	39	14	52	20	30	30	7	16	208
	Monongalia	259	24	88	95	127	59	45	42	739
	Preston	19		39	161	154	34		4	411
	Taylor	20	5	29	54	5	10	5	3	131
		414	65	346	514	440	187	120	101	2187
8	Kanawha	202		40	126	334	147	66	122	1047
9	Marshall	16	10	22	10	104	34	10	15	221
	Ohio	26	6	25	10	243	159	8	14	491
		42	16	47	20	347	193	18	29	712

10	Brooke	8	2	14	3	25	16	2	8	78
	Hancock	18	7	7	10	25	17	29	37	150
		26	9	21	13	50	33	31	45	228
11	Berkeley	24	8	38	6	12	13	18	7	126
	Jefferson	33	16	74	25	20	12	19	13	212
	Morgan	11	4	20	54	7	5	51	7	159
		68	28	132	85	39	30	88	27	497
12	Grant	10	7	35	85	15	10	5	23	190
	Hampshire	12	18	53	78	15	18	90	14	298
	Hardy	22	6	59	71	73	6	16	28	281
	Mineral	10	4	10	50	6	5	34	15	134
	Pendleton	12	7	41	63	17	7	10	4	161
	Randolph	44	12	34	219	16	20	12	16	373
	Tucker	16	2	5	249	2	5		70	349
		126	56	237	815	144	71	167	170	1786
		1424	566	1778	4605	2509	1340	801	828	13851

Distribution of Non-Farm Agricultural Employment By Occupational Level, Formal Education, And Knowledge of Agriculture

Occupational level of employment, formal education, and knowledge of agriculture required by the responsibilities of the occupation were selected as the employment characteristics for consideration in this study. Many employment characteristics would need to be considered as prerequisite to planning specific educational programs, but these would best be determined by more detailed study immediately prior to the planning stage.

Employees grouped according to knowledge of agriculture required

Persons interviewed were asked to describe broadly the knowledge of agriculture required for each non-farm agricultural employee by the assignment of a term which represented the employee's agricultural knowledge. The terms were "Comprehensive," "General," "Casual," and "None."

Table 11 displays the distribution of employees according to agricultural knowledge required for employment entrance.

TABLE 11

DISTRIBUTION OF EMPLOYEES BY KNOWLEDGE OF AGRICULTURE REQUIRED

Knowledge of Agriculture	Number of Employees	Per Cent
Comprehensive	2,508	18.1
General	5,118	37.0
Casual	5,976	43.1
None	249	1.8
TOTALS	13,851	100.0

Of significance to those who will be considering future programs in agricultural education is the 18.1 per cent of the employees who were classified as needing a "Comprehensive" knowledge of agriculture. This group of 2,508 employees would be typically thought of as needing and requiring more comprehensive educational programs in agriculture.

The "General" classification contained 5,118, or 37 per cent of the total. The largest number of workers fell in the "Casual" group. This group contained 5,976, or 43.1 per cent of all agricultural workers. The workers in this group probably had the least contact with farmers and farm production.

Distribution of workers by level of employment

Table 12 shows the distribution of the 13,851 non-farm agricultural workers in the state by occupational level of employment. It would seem that much value may be derived from the data contained in Table 12 by the implications as to needs for which vocational education programs should be planned.

The greatest potential for developing educational programs appears to lie with the "Semi-Skilled" level. This level contains 4,184, or 30.2 per cent of the total. The "Skilled" level ranked next with 2,836, or 20.5 per cent, followed by "Sales" with 1,620, or 11.7 per cent, and "Managers" with 1,207, or 8.7 per cent.

Only 4.6 per cent, 637 workers, were in occupations classified as "Technical." This small number may be attributed to the inability of the employer in many cases to recognize "Technical" as a classification of employees. A close examination of the completed survey instrument reveals several probable technical occupations classified as other levels. Examples of these are: conservation aide, forester

aide, landscape aide, milk processor, and feed processor. All of these occupations fall within the classification of technicians, but none were classified as such.

TABLE 12

DISTRIBUTION OF EMPLOYEES BY LEVEL OF EMPLOYMENT

Occupational Level	Number Employees	Per Cent
Proprietors and Managers	1,207	8.7
Professional	1,480	10.7
Technical	637	4.6
Sales	1,620	11.7
Clerical	550	4.0
Skilled	2,836	20.5
Semi-Skilled	4,184	30.2
Unskilled	1,337	9.6
TOTALS	13,851	100.0

It is understandable that a relatively small number of "Clerical" personnel would be identified as agricultural workers. Although many clerical workers for agricultural agencies would be somewhat familiar with the product or service of the agency and would know the vernacular of the agency, it would seem that only a small percentage would be required to possess agricultural knowledge or skills.

Formal education required

The interview instrument sought from each respondent an opinion relative to the formal educational requirements of each agricultural occupation. Table 13 shows a distribution of these educational requirements.

The data contained in this table indicate the importance of educational achievement in preparation for non-farm agricultural employment. It is interesting that about one-third of the workers were in positions where the educational requirements were less than high school graduate, but only 1,713, or 12.4 per cent of the total occupations, were rated educationally as "Doesn't Matter." However, this is understandable, since over one-third of the workers were classified as "Unskilled or Semi-Skilled." The 1,835 employees rated as "College Graduate" and "Graduate Degree" were only slightly greater than the number rated as "Professional" in Table 12.

TABLE 13

DISTRIBUTION OF EMPLOYEES BY FORMAL EDUCATION REQUIRED FOR ENTRANCE

Educational Level	Number of Employees	Per Cent
Doesn't Matter	1,713	12.4
Some High School	3,177	22.9
High School Graduate	3,036	21.9
High School Plus Special Training	3,622	26.2
Some College	468	3.4
College Graduate	1,461	10.5
Graduate Degree	374	2.7
TOTALS	13,851	100.0

A total of 48.1 per cent, 6,658 workers, were in positions requiring high school education or a high school education plus special training. This could well be the sector affording the greatest

opportunity for vocational education programs. However, the number of youth who would be available for post-high school vocational programs is delimited considerably due to two factors. The first is the 38.5 per cent of youth who enter the ninth grade but do not remain to graduate;[17] the other is the 29.8 per cent of youth graduating from high school who enter college.[18] Neither of these groups would likely partake of post-high school education.

Future Outlook for Non-Farm Agricultural Occupations

Attention will now be given to some evidence which concerns the future opportunity for employment. Inquiry was made concerning the number of non-farm agricultural employees who were anticipated to be with the agency after a five-year period. The current and anticipated employment for each county is presented in Table 14.

The employment which the employer indicated would be needed in the next five years was a 7.7 per cent increase over current employment. The current employment was 13,851 and the anticipated number was 14,922, an increase of 1,071.

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[17] West Virginia Educational Bulletin, 1963, p. 30.

[18] Ibid., pp. 31-39.

TABLE 14

COMPARISON OF NON-FARM AGRICULTURAL EMPLOYMENT -
CURRENT AND FIVE-YEAR ANTICIPATED - BY COUNTY

Area	County	Current Employment	Anticipated Employment	Change
1	Boone	211	222	11
	Logan	190	208	18
	Mingo	190	206	16
2	McDowell	132	142	10
	Raleigh	221	240	19
	Wyoming	221	255	34
3	Fayette	313	324	11
	Greenbrier	586	688	102
	Mercer	229	241	12
	Monroe	122	133	11
	Pocahontas	301	315	14
	Summers	195	221	26
4	Calhoun	147	168	21
	Pleasants	68	67	- 1
	Ritchie	64	70	6
	Roane	231	263	32
	Tyler	137	140	3
	Wetzel	130	124	- 6
	Wirt	79	81	2
	Wood	391	388	- 3
5	Cabell	1136	1170	34
	Jackson	119	129	10
	Lincoln	133	136	3
	Mason	240	265	25
	Putnam	80	104	24
	Wayne	217	213	- 4
6	Braxton	129	143	14
	Clay	197	208	11
	Gilmer	139	148	9
	Lewis	152	177	25
	Nicholas	203	222	19
	Upshur	341	352	11
	Webster	150	147	- 3

Area	County	Current Employment	Anticipated Employment	Change
7	Barbour	178	194	16
	Doddridge	54	59	5
	Harrison	466	473	7
	Marion	208	213	5
	Monongalia	739	931	192
	Preston	411	435	24
	Taylor	131	128	- 3
8	Kanawha	1047	1192	145
9	Marshall	221	268	47
	Ohio	491	473	-18
10	Brooke	78	69	- 9
	Hancock	150	148	- 2
11	Berkeley	126	141	15
	Jefferson	212	218	6
	Morgan	159	148	-11
12	Grant	190	190	0
	Hampshire	298	346	48
	Hardy	281	311	30
	Mineral	134	144	10
	Pendleton	161	162	1
	Randolph	373	398	25
	Tucker	349	371	22
	TOTALS	13,851	14,922	+ 1,071

Table 15 depicts the distribution of increase in the eight categories of non-farm agricultural employment.

The largest increase was in the forestry category. Considering the proportion of the total employment found in forestry, it is not surprising that a similarly large part of the increased employment is predicted for this category. This category accounted for over 50 per cent of the increase, or 574 out of the total of 1,071. The second largest increase was in ornamental horticulture, followed by wildlife and recreation. These trends should provide some guidance for the planning of educational programs.

TABLE 15

DISTRIBUTION OF CURRENT AND FIVE-YEAR ANTICIPATED NON-FARM AGRICULTURAL EMPLOYMENT BY CATEGORIES

Category	Current Number Workers	Number Workers Anticipated In Five Years	Change
Forestry	4,605	5,179	+ 574
Livestock and Poultry Industry	2,509	2,543	+ 34
Farm Supplies & Equipment	1,778	1,842	+ 64
Agricultural Service	1,424	1,490	+ 66
Ornamental Horticulture	1,340	1,465	+ 125
Wildlife and Recreation	828	850	+ 122
Produce Industry	801	813	+ 12
Farm Service	566	640	+ 74
TOTALS	13,851	14,922	+1,071

OCCUPATIONAL CATEGORIES OF NON-FARM AGRICULTURAL EMPLOYMENT ANALYZED, WITH IMPLICATIONS FOR EDUCATIONAL PROGRAMS

This section will be concerned with an analysis of employment categories in terms of numbers of workers comprising the non-farm agricultural employment. Training programs which may be an outgrowth of this study are likely to be planned to serve one particular type or kind of non-farm agricultural employment, or in some instances may serve more than one kind or type with comparable training needs. Consequently, each employment category will be broken down into the major types of employing agencies and the number of workers employed in each type.

An employment category is an occupational classification based upon a major agricultural interest. The eight employment categories identified earlier in the study are forestry, livestock and poultry industries, farm supplies and equipment, agricultural service, ornamental horticulture, wildlife and recreation, produce industries, and farm service. These employment categories will be discussed individually, beginning with forestry, the largest in terms of employment, and proceeding to farm service.

Forestry

Forestry is considered a sector of agriculture in West Virginia. The phases of forestry beginning with the production of forest products and including all processes, jobs, and services involved until the forest product is harvested and, in the case of timber, until the sawed lumber is ricked for air curing is considered to be agriculture.

Consequently, all employing agencies having employees concerned with any of the above aspects of forestry will be included under the forestry category. The workers identified in Table 16 were in positions considered as requiring skills, knowledge, or competencies in forestry.

TABLE 16

DISTRIBUTION OF AGRICULTURAL EMPLOYEES
IN THE FORESTRY CATEGORY

Employing Agency	Number Agencies	Employees	
		Number	Per Cent
Sawmilling	458	4,335	94.1
United States Forest Service	6	148	3.2
Department of Natural Resources (Forestry Division)	1	66	1.4
Timber Processing-Preserving	3	26	.6
Timber Harvesting	3	14	.3
Forestry Consultation	3	9	.2
Marketing, Timber and Lumber	2	7	.2
TOTALS	476	4,605	100.0

The number of workers identified in the forestry category totaled 4,605. This was 33.2 per cent of the 13,851 workers classified as non-farm agricultural workers.

There appears to be sufficient implications in the forestry employment to warrant further investigation to determine specific course offering possibilities. The 4,335 workers in sawmilling would render this industry highly fertile for educational programs.

Livestock and Poultry Industries

The second largest category of agricultural employment was that accounting for the livestock and poultry industries. In this category were listed all agencies directly involved with producing, processing, marketing, and distributing of livestock, poultry, and also livestock, poultry, and dairy products. It is admitted that considerable variance of positions and job responsibilities occurs in this employment category. This employment category accounted for 2,509 workers, or 18.1 per cent of the total non-farm agricultural employment. The distribution is shown in Table 17.

TABLE 17

DISTRIBUTION OF AGRICULTURAL EMPLOYEES IN A LIVESTOCK AND POULTRY INDUSTRIES CATEGORY

Employing Agency	Number Agencies	Employees Number	Employees Per Cent
Dairy Products Processing, Manufacturing, and Distributing	88	1,233	49.1
Livestock Processing	48	539	21.5
Livestock Marketing	29	276	11.0
Livestock Production	10	192	7.7
Poultry Production, Processing, and Distribution	32	181	7.2
Meat Distribution	8	64	2.6
Animal Clinics	8	24	.9
TOTALS	223	2,509	100.0

Farm Supplies and Equipment

The complex of agencies on which agricultural production depended for certain services, supplies, and equipment were subdivided into nine types. These are depicted in Table 18.

This entire category accounted for employment positions of nearly 1,800 workers, almost 13 per cent of the total non-farm agricultural employment of the state.

TABLE 18

DISTRIBUTION OF AGRICULTURAL EMPLOYEES IN THE FARM SUPPLIES AND EQUIPMENT CATEGORY

Employing Agency	Number Agencies	Employees	
		Number	Per Cent
Farm Supply	186	730	41.1
Farm Machinery Sales and Service	101	425	23.9
Feed and Fertilizer Sales	16	158	8.9
Hardware Sales	36	147	8.3
Feed Manufacturing and Processing	27	124	7.0
Co-Op Sales	7	101	5.7
Feed Sales	18	50	2.8
Fertilizer Manufacturing	18	22	1.2
Fertilizer Sales	11	21	1.1
TOTALS	420	1,778	100.0

Inherent in this complex of agricultural employing agencies are certain implications for programs of vocational education--not exclusively for vocational agriculture, but for other services as well. The most apparent opportunity lies with the sales and service functions of the employing agencies in this category. A total of 355 of the 420 employing agencies, with 1,632 of the 1,778 employees, had "sales" as one of their primal functions. This employment affords an almost certain opportunity for the immediate implementation of a jointure program of vocational agriculture and distributive education to train agricultural salesman. Another jointure program might be the training of farm machinery servicemen and mechanics by vocational agriculture and trade and industrial education.

Agriculture Service

There is a large sector, in fact 10.3 per cent, of the non-farm agricultural employment which directly serves production agriculture by providing some aid, assistance, or service. The agencies which were grouped into this "service" category are identified in Table 19. The greater proportion of the agencies grouped here were those employing professional persons, many of whom would have need for college preparation.

TABLE 19

DISTRIBUTION OF AGRICULTURAL EMPLOYEES IN THE AGRICULTURE SERVICE CATEGORY

Employing Agency	Number Agencies	Employees	
		Number	Per Cent
U. S. Department of Agriculture	25	538	37.8
West Virginia University	11	240	16.9
State and Institutional Farms	15	137	9.6
Vocational Agriculture Service	1	115	8.1
State Department of Agriculture	1	76	5.3
Insurance Sales	26	64	4.5
Utility Companies	9	61	4.3
Veterinarians	23	55	3.8
Large Industries	12	50	3.5
Colleges	8	30	2.1
Farm Loan Agencies	4	24	1.7
Banks	12	13	.9
Realtors	3	7	.5
Brokers	3	6	.4
Farmer Organizations	1	5	.4
Communications	3	3	.2
TOTALS	157	1,424	100.0

Ornamental Horticulture

Ornamental horticulture, while ranking fifth in the categories of agricultural employment, contained a significant number of employing agencies and employees, nearly 10 per cent of all non-farm agricultural personnel in the state. Table 20 is a distribution of this employment classified as ornamental horticulture.

The 193 agencies and their 1,340 employees constitute 9.7 per cent of the total non-farm agricultural employment.

TABLE 20

DISTRIBUTION OF AGRICULTURAL EMPLOYEES IN THE ORNAMENTAL HORTICULTURE CATEGORY

Employing Agency	Number Agencies	Employees	
		Number	Per Cent
Greenhouses	61	404	30.2
Nurseries	60	381	28.4
Greenhouse-Nursery-Garden Center	13	176	13.1
Tree Service	8	96	7.2
Landscape Service	22	93	6.9
County Governments	18	72	5.4
Garden Centers	11	44	3.3
Flower Production	2	40	3.0
State Institutions	3	18	1.3
City Governments	5	16	1.2
TOTALS	193	1,340	100.0

Wildlife and Recreation

Persons in the state employed by agencies having as their primal function some phase or phases of wildlife and/or recreation totaled 828. This was 6 per cent of the non-farm agricultural employment, employed by 149 agencies. Table 21 presents a distribution of this employment by employing agency.

This type of agency is somewhat misleading in terms of the agriculturally employed, having a function or service closely allied with recreation. To a considerable extent, the workers classified as agricultural had a main function more closely allied with the recreational facility than with a recreational program. For example, 102 employees in this group had the job title "Greenskeeper." They were employed by golf courses or recreational agencies having golf courses.

TABLE 21

DISTRIBUTION OF AGRICULTURAL EMPLOYEES IN A WILDLIFE AND RECREATIONAL CATEGORY

Employing Agency	Number Agencies	Employees	
		Number	Per Cent
State Department of Natural Resources	55	355	42.9
Recreational Agencies	60	308	37.2
Parks	19	84	10.1
Camps	6	46	5.6
Game Farms	9	35	4.2
TOTALS	149	828	100.0

Produce Industries

This category was created to include those agencies having as a main function the processing, merchandising, and marketing of fruit and vegetables. Table 22 presents a distribution of these agencies.

The sixty-eight employing agencies in this category were grouped into five types which employed 801, or 5.9 per cent of the total employment considered in this study.

TABLE 22

DISTRIBUTION OF AGRICULTURAL EMPLOYEES IN A PRODUCE INDUSTRIES CATEGORY

Employing Agency	Number Agencies	Employees	
		Number	Per Cent
Orchard Production and Merchandising	21	454	56.7
Produce Distribution	35	271	33.8
Vegetable Processing	3	41	5.1
Fruit Marketing	6	26	3.2
Fruit Processing	3	9	1.2
TOTALS	68	801	100.0

Farm Service

The eighth category and smallest both in number of agencies and employment was farm service. These agencies had as primal functions direct services to the farmer or farm production. Table 23 depicts this employment.

TABLE 23

DISTRIBUTION OF AGRICULTURAL EMPLOYEES IN THE FARM SERVICE CATEGORY

Employing Agency	Number Agencies	Employees	
		Number	Per Cent
Marketing, Miscellaneous	20	466	82.3
Farm Custom Work	5	35	6.2
Farm Service	6	65	11.5
TOTALS	31	566	100.0

Identification of Non-Farm Agricultural Workers by Job Titles

During the course of data collection each person interviewed was asked to give the job title for each different non-farm agricultural occupation. It soon became evident that employers did not have definite and precise job titles for all workers. Consequently, interviewees in different agencies may have given different job titles to workers performing similar duties with similar responsibilities. No effort was made when coding the survey instruments to correct or alter job titles assigned by the employers. It is not claimed that all job titles obtained are correct and properly assigned, but it is thought that the frequency of error would not be so great as to affect significantly the results of this study.

A total of 239 different job titles was provided by the persons interviewed and is displayed in Table 24. This information was obtained from the survey instruments in order to prepare this master list.

TABLE 24

JOB TITLES AND NUMBER
OF WORKERS IN EACH

Job Title	Number Workers
Administrator	10
Coordinator	17
Credit Manager	5
Division Director	13
Executive Secretary	9
Fish Hatchery Superintendent	15
Foreman	196
General Manager	46
Maintenance Supervisor	12
Manager	844
Market Manager	12
Office Manager	87
Games Manager	24
Game Farm Superintendent	5
Game Management Agent	9
Lake Manager	9
Land Reclamation Chief	7
Parks Chief	15
Nursery Superintendent	6
Park Superintendent	30
Parts Manager	6
Personnel Manager	6
Plant Manager	21
Plant Superintendent	14
Production Manager	27
Produce Manager	38
Production Supervisor	7
Project Foreman	7
Public Relations Director	9
Quality Control Supervisor	7
Sales Manager	56
Service Manager	11
State Forest Superintendent	9
Superintendent	48
Supervisor	50
Agricultural Chemist	5
Agricultural Economist	19
Agricultural Engineer	7
Agricultural Journalist	5
Agricultural Representative	17
Agronomist	11

Job Title	Number Workers
Animal Science Specialist	15
ASC Program Reviewer	17
Biologist	31
ASC Program Specialist	6
Bacteriologist	6
ASC State Executive	5
Broker	19
Civil Engineer	11
Climatologist	5
College Instructor	92
Dean	6
Conservation Engineer	6
Draftsman	6
Engineering Field Specialist	9
Cooperative Extension Agent	73
Educational Specialist	6
Economist	6
Entomologist	7
Farm Appraiser	6
Farm Representative	5
Farm Loan Officer	5
Feed Specialist	8
FHA Area Supervisor	7
FHA County Supervisor	30
FHA Operating Loan Officer	7
FHA Real Estate Loan Officer	5
FHA Rural Renewal Project Leader	5
Forest Engineer	6
Forest Supervisor	5
Forester	83
Engineer	7
4-H Club Leader	49
Geologist	9
Home Economist	59
Home Service Director	5
Horticulturist	21
Hydraulic Engineer	5
Landscape Architect	13
Landscape Consultant	9
Market Specialist	5
Mechanical Engineer	7
Poultry Specialist	5
Procurement Officer	5
Plant Pathologist	7
Ranger	42
Recreational Planner	6
Research Specialist	5
Rural Sociologist	6

Job Title	Number Workers
Research Assistant	63
Sanitarian	95
Right-of-Way Appraiser	11
Soil Conservationist	28
Soil Scientist	7
Rural Home Counselor	5
Survey Supervisor	6
Supervisor	8
Statistician	6
Veterinarian	76
Vocational Agriculture Instructor	115
Wildlife Specialist	9
Woodland Conservationist	5
Work Unit Conservationist	48
Wood Scientist	4
Wood Technologist	4
Accountant	5
Agriculture Field Agent	11
ASC Checker	6
ASC County Office Manager	6
Auctioneer	24
Banker - Farm Loan	17
Conservation Officer	80
Field Inspector	6
Dairy Inspector	5
Fruit Inspector	6
Fire Control Officer	6
Designer	8
Fieldman	26
Hatcheryman	18
Herdsman	23
Landscape Designer	12
Instructor, riding	7
Inspector	25
Marketing Specialist	10
Poultry Specialist	12
Nurseryman	21
Storage Operator	5
Stock Inspector	13
Tree Surgeon	11
Trainer, horse	7
Animal Science Technician	14
Artificial Inseminator	22
Conservation Technician	52
DHIA Technician	7
Engineering, Technical	18
Inspector, Agriculture	7
Forestry Technician	36
Laboratory Technician	16

Job Title	Number Workers
Landscape Technician	26
Processor, Dairy Products	74
Processor, Field	50
Plant Materials Technician	6
Property Engineer	7
Surveying Technician	9
Veterinarian Technician	21
Buyer	67
Driver, Salesman	738
Merchandiser	28
Sales Agent	7
Sales Clerk	351
Salesman	422
Purchasing Agent	8
ASC General Clerk	50
Clerk	112
Bookkeeper	129
Receptionist	9
Shipping Clerk	28
Secretary	38
Stenographer	6
Treasurer	6
Blacksmith	8
Butcher	112
Checker	7
Game Management Aide	7
Greenskeeper	102
Fisheries Aide	7
Engineering Aide	9
Maintenance Coordinator	9
Meat Cutter	39
Mechanic	282
Mill Operator	14
Welder	16
Trapper	10
Veterinarian Aid	8
Boner	13
Bulktank Truck Driver	30
Caretaker	65
Deliveryman	19
Farm Machinery Operator	24
Fish Hatchery Attendant	15
Forestry Aid	44
Forest Protector	10
Gardener	12
Grinderer	8
Groundskeeper	83
Grower	218
Guide	8
Laborer	2,789

Job Title	Number Workers
Landscape Aid	52
Lift Operator	18
Livestock Feeder	16
Lookout	37
Packager	43
Parts Man	30
Pruner	46
Receiver	15
Ringman	60
Tester	30
Scales Operator	17
Serviceman	87
Shipper	41
Stock Clerk	63
Surveying Aid	8
Tree Pruner	30
Truck Driver	549
Warehouseman	84
Yardman	45
Laborer	95
Sawyer	480
Block Setter	71
Debarker	13
Chipper	18
Edgerman	90
Trimmer	30
Cutoffman	135
Planer Operator	13
Inspector	23
Kiln Operator	6
Grader	144
Green Chainman	45
Wedge Cutter	17
Washerer	8
Yardman	87
Timber Cutter	549
Timber Cruiser	38
Loader Operator	77
Doser Operator	51
Stacker	216
Skidder	21
Bandsaw Operator	14
Line-bar Operator	7
Tipper	14
Saw Filer	19
Log Scaler	19
Yardman	7
Millwright	12
Oiler	8
Teamster	15
Logger	256
Offbearer	155
Total	13,851

Implications for Training Programs

Now that the non-farm agricultural sector of the labor force has been broadly analyzed by county and geographic area and more specifically by category of employment, it appears that sufficient information is available to serve as a basis for selecting some areas of agriculture for possible programs of vocational education. It appears also that certain factors within this information might be used as aids in the selection of potential areas for training programs. The following factors are deemed worthy of consideration.

1. Type and number of employing agency.
2. Number of employees in the categories of employment.
3. Number of employees in certain job titles.
4. Formal educational requirements of certain types of employment.
5. Anticipated increase in the categories of employment.

Using these factors as aids in the selection of potential categories of agriculture and specific occupations, the following occupations and occupational groups have been selected as possible programs of vocational education. This listing of potential categories and occupations for which training programs might be developed is by no means complete, nor is it claimed that each of the suggested areas should be developed into training programs. Prior to program development must come an exhaustive investigation of many factors upon which the planning and implementation of such programs should be based.

Category	Total Number Non-Farm Agricultural Employees	Number Anticipated in Five Years	Occupation or Groups of Related Occupations	Number Workers by Job Titles
Forestry	4,605	5,179	Timber faller	549
			Sawyer	480
			Timber logger	256
			Lumber grader	144
			Forestry technician	88
			Forester aide	54
Livestock and Poultry Industries	2,509	2,543	Route salesman	738
			Dairy laboratory technician	74
			Veterinarian technician	59
Farm Supplies and Equipment	1,778	1,842	Agricultural salesman	773
			Farm machinery mechanic	282
			Farm machinery serviceman	87
Ornamental Horticulture	1,340	1,465	Turf manager	83
			Greenhouse technician	200
			Landscape aide and technician	68
			Arborist	76
			Nursery technician	49
Agricultural Service	1,424	1,490	Conservation technician	52
Wildlife and Recreation	828	850	Wildlife technician	43
			Greenskeeper	102
			Conservation officer	80
Miscellaneous			Agricultural business manager	844

RECOMMENDATIONS

On the basis of the data and findings of the study, as well as the experiences of the author, the following recommendations are made relative to vocational education programs to serve the non-farm agricultural employment in West Virginia:

1. Existing programs of vocational education in agriculture should be studied in light of the data revealed in this study, with a view to identifying needs and direction for change which would better prepare persons to enter all areas of agricultural employment.

a) Teachers of vocational agriculture should use data found in this study in providing guidance and counseling services to students to aid them in the formulation of educational and career objectives.

b) Current programs of vocational education in agriculture should be enriched and extended in certain localities to serve non-farm agriculture.

2. Further analysis should be made of the geographic areas of the state to serve as a basis for the planning and implementation of agricultural education directed toward employment in non-farm agriculture.

3. Further analysis should be made of current and anticipated employment to guide the planning and implementation of high school, post-high school, and adult educational programs to serve those already employed as well as those who are desirous of entering.

4. A Pilot forestry technician program should be planned, implemented, completed, and evaluated.

5. Pilot programs should assist in determining the direction of a state program to serve non-farm agricultural employment.

6. An appraisal should be made of the projected forestry industry in the Appalachian counties of the state to determine the feasibility of developing a forestry institute. Such an institute could serve many segments of the current forestry employment and assist in the further expansion of the industry.

7. Other services of vocational education, particularly Distributive Education and Trade and Industrial Education, should be involved in the planning and implementation of certain educational programs for the agriculturally employed.

8. There is a need for further studies concerning--

a) Pre-employment education of the segments of non-farm agriculture affording the largest employment.

b) In-service education of those employed in certain non-farm agricultural occupations and clusters of occupations.

c) Pre-service and in-service teacher education for non-farm agriculture.

d) The best means for providing occupational experiences for those preparing for employment in non-farm agriculture.